Institutional Program Review—2018-2019
Program Efficacy Phase: Instruction
DUE: Monday, March 18, 2019 by NOON

Purpose of Institutional Program Review: Welcome to the Program Efficacy phase of the San Bernardino Valley College Program Review process. Program Review is a systematic process for evaluating programs and services annually. The major goal of the Program Review Committee is to evaluate the effectiveness of programs and to make informed decisions about budget and other campus priorities.

For regular programmatic assessment on campus, the Program Review Committee examines and evaluates the resource needs and effectiveness of all instructional and service areas. These review processes occur on one-, two-, and four-year cycles as determined by the District, College, and other regulatory agencies. Program review is conducted by authorization of the SBVC Academic Senate.

The purpose of Program Review is to:

- Provide a full examination of how effectively programs and services are meeting departmental, divisional, and institutional goals
- Aid in short-range planning and decision-making
- Improve performance, services, and programs
- Contribute to long-range planning
- Contribute information and recommendations to other college processes, as appropriate
- Serve as the campus' conduit for decision-making by forwarding information to appropriate committees

Our Program Review process includes an annual campus-wide needs assessment each fall and an in-depth efficacy review of each program on a four-year cycle. All programs are now required to update their Educational Master Plan (EMP) narrative each fall. In addition, CTE programs have a mid-cycle update (2 years after full efficacy) in order to comply with Title 5 regulations.

Committee members are available to meet with you to carefully review and discuss your Program Efficacy document. You will receive detailed feedback regarding the degree to which your program is perceived to meet institutional goals. The rubric that the team will use to evaluate your program is embedded in the form. As you are writing your program evaluation, feel free to contact the efficacy team assigned to review your document or your division representatives for feedback and input.

Draft forms should be written early so that your review team can work with you at the **small-group workshops:**
Friday, February 22 from 9:30 to 11:00 a.m. in NH-222
Friday, March 1 from 9:30 to 11:00 a.m. in B-204

Final documents are due to the Committee co-chairs (Paula Ferri-Milligan at pferri@sbccd.cc.ca.us and Wallace Johnson at wjohnson@sbccd.cc.ca.us) by **NOON on Monday, March 18, 2019**.

SUBMISSION FORMAT: **1) Use this current efficacy form and attach as a MICROSOFT WORD DOCUMENT (do NOT convert to PDF)**
2) Do NOT change the file name

It is the writer's responsibility to be sure the Committee receives the forms on time.

The efficacy process now incorporates the EMP sheet and SLO/SAO documentation, which you will need to insert. We have inserted the dialogue from the committee where your last efficacy document did not meet the rubric, the curriculum report (if applicable), and the SBVC demographic data. **If you have questions regarding the SBVC demographic data, contact Christie Gabriel, Research Analyst, at** cgabriel@sbccd.cc.ca.us **by February 25. If you have additional data requests, those requests must be submitted to Christie Gabriel by February 8.** Following is the link to Program Review Efficacy Resources, which will be useful as you complete your efficacy report:

https://www.valleycollege.edu/about-sbvc/campus-committees/academic-senate/program-review/17-efficacy.php

Program Efficacy

2018 – 2019

Program Being Evaluated

Computer Science

Name of Division

Mathematics, Business & computer Technology

Name of Person Preparing this Report **Extension**

Reginald Metu,

Names of Department Members Consulted

Malik Stalber, Maha Al-Hussini

Names of Reviewers

Johnny Roberts, Tim Hosford, Abena Wahab

Work Flow	**Date Submitted**
Initial meeting with department	
Meeting with Program Review Team	
Report submitted to Program Review co-chair(s) & Dean	**by NOON on March 18**

Staffing

List the number of full and part-time employees in your area.

Classification	Number Full-Time	Number Part-time, Contract	Number adjunct, short-term, hourly
Managers	0	0.25	0
Faculty	.5	0	5
Classified Staff	.25	0	0
Total	.75	0.25	5

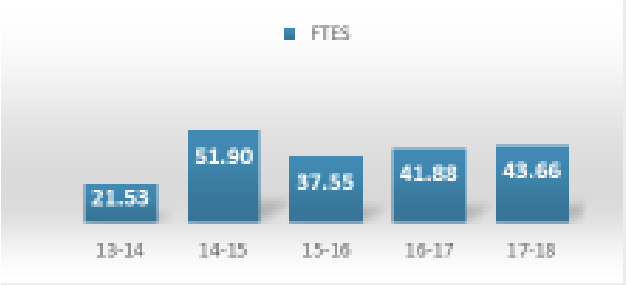
PROGRAM: PLEASE INSERT YOUR RECENT EMP FROM FALL 2018

San Bernardino Valley College

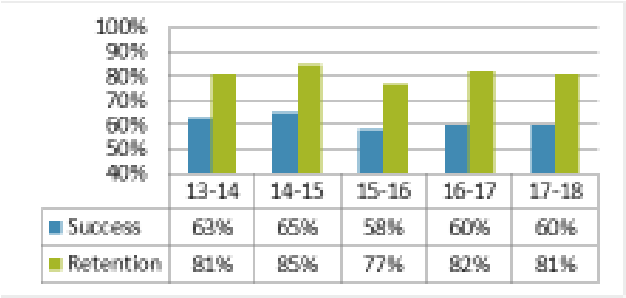
COMPUTER SCIENCE — 2017-2018

Description: (Provide an updated overview of your program/area. 225 Words Max)

Computer Science program prepares students planning to transfer to a four-year university, experience in computer programming for students enrolled in science or engineering disciplines and academic computer science preparation for students interested in pursuing employment at Valley College. The program offers an AS degree and a certification in computer science.



	13-14	14-15	15-16	16-17	17-18
Duplicated Enrollment	191	295	217	237	252
FTEF	2.68	3.98	3.02	3.64	3.85
WSCH per FTEF	241	391	373	345	340



	13-14	14-15	15-16	16-17	17-18
Sections	9	13	11	12	13
% of online enrollment	89%	92%	82%	100%	100%
Degrees awarded	1	0	0	5	5
Certificates awarded	1	0	0	0	0

Assessment: (Provide an analysis based on the data provided. As you do so, address each of the tables/charts. 225 Words Max)

FTES from 2017-2018 data indicated much improvement compared to that of 2016-2017, and equally higher than the last 4 years, except for the 14-15 academic years. FTES for 12-13 was slightly higher than the 2016 – 2017, and 2017 – 2018. Student success remains the same from last year data. There is a slight dip in student retention compared to 16-17 data. Degrees and certificates awards are about the same from the previous year.

Progress from Last Year's Action Plan: (Provide an update on the progress made from last year's Action Plan. 225 Words Max)

Lots of progress have been made from last year's action plan. Majority of CS certificates and degree has been modified and gone through region 9 approval process. We have an AS degree aligned with CSUSB. We have continued to expand our academy models; working on outreach and has some articulation agreements with some of our feeder High Schools. We have developed many non-credit CS program(s) and certificates. We developed new courses in iOS, Android and web security for the CS major; all are waiting final approval at the state chancellor's office. Except for the 14 -15 years, FTES is at highest level compared to any other year.

SAOs/SLOs/PLOs: (Summarize how the assessment of SAOs, PLOs and/or any SLOs that shows significant effect has influenced your goals. 200 Words Max)

The Analysis of department SLO downloaded from the college SLO cloud for the years 2017-2018, revealed that about 78.64.59% percent of the students who completed SLO could analyze a problem and create an algorithmic solution for the desired resolution. The findings well tied into one of our department goals #1, which attempts to Increase the number of students who earn a Computer Science degree and certificate. In another related area of the SLO revealed that 78.97% of the students queried could design, implement and evaluate secure computer-based system specification. In another finding, 78.64% per of the student agree that they engage in research to access new ideas and information. These findings support Computer Science goals #5 and #6. It appears like the students will be more than likely to embrace a new course in the discipline to address developing technologies and changing nature of the computer field. Reader Note: "Data in this analysis contain duplicate headcount. A student can be counted once for each statement in an SLO, and for each class they took."

Departmental/Program Goals: (Goals should be specific, measurable, linked to your data analysis, and reflected in the Action Plan section). Tie goals to the college.

1. Increase the number of students who earn a CS degree and certificate
2. Create transfer and Career Pathways
3. Improve student success and retention
4. Offer a new certification aligned with Microsoft Programming certification(s)
5. Develop a new course to address the changing trend in discipline
6. Develop a Gaming certificate

Challenges & Opportunities: (Challenges and opportunities should be reflected in the Action Plan. 200 words maximum).

Challenges

1. Frequent course cancellation due to low enrollment each semester
2. The unnecessary high number of units required for CS AS-T degree
3. Lack of workforce to conduct high school outreach
5. Rapid and constant nature of the field
6. lengthy Regional, State and ACCJC degree and certificate approval process
7. No loopback communication between Regional consortium approval process and the college curriculum committee.

Opportunities

1. Visio Studio
2. Game programming and development
2. Microsoft IT Academy
3. Partnership with Here to Career and Workability Grants to develop new courses
4. New classes to address emerging areas of the Computer science discipline
5. Active Computer Science student gaming club on campus

Action Plan: (Describe your top priorities reflected in the Departmental/Program goals and provide specific steps to reach these goals.)

Action Steps	Department Goal	Necessary Resources to Complete	Target Completion Date
1. Offer course students need to graduate on time 2. Improve outreach efforts to feeder High 3. Create new course to address needed area 4. Offer sections in newly approved course in Android, iOS, and Web programming 5. Start process design a game certificate	1. Increase the number of students who earn a CS degree and certificate 2. Improve student success and retention 3. Offer a certificate aligned with Microsoft Programming certification(s) 4. Develop new courses to address changing trends in discipline 5. Develop a Gaming certificate	1. Incentive to attract and retain qualified faculty in the CS area. 2.Funds to do the leg work required 3. None 4. None 5. none	1. Ongoing 2. Ongoing 3. Spring-2018 4. Spring-2018 5. Fall-2019

Part I: Questions Related to Strategic Initiative: Increase Access

Goal: SBVC will improve the application, registration, and enrollment procedures for all students.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Demographics	The program **does not provide** an appropriate analysis regarding identified differences in the program's population compared to that of the general population.	The program **provides an analysis** of the demographic data and provides an interpretation in response to any identified variance. The program **discusses the plans or activities** that are in place to recruit and retain underserved populations as appropriate.	In addition to the meets criteria, the program's analysis and plan **demonstrates a need** for increased resources.
Pattern of Service	The program's pattern of service is **not related to the needs of students**.	The **program provides** evidence that the pattern of service or instruction meets student needs. The program **discusses the plans or activities** that are in place to meet a broad range of needs.	In addition to the meets criteria, the program **demonstrates that the pattern of service needs to be extended**.

Use the demographic data provided to describe how well you are providing access to your program by answering the questions below.

Demographics – 2015-16 to 2017-18 Academic Years		
Demographic Measure	**Program: Computer Science**	**Campus-wide**
Asian	9.6%	4.8%
African-American	6.1%	12.4%
Hispanic	62.7%	65.3%
Native American	0.0%	0.2%
Pacific Islander	0.4%	0.2%
White	21.2%	13.2%
Unknown	0.0%	3.9%
Female	21.5%	57.5%
Male	78.5%	42.5%

Disability	2.5%	5.4%
Age 19 or Less	2.5%	22.5%
Age 20 to 24	46.3%	34.7%
Age 25 to 29	30.0%	17.7%
Age 30 to 34	13.5%	9.3%
Age 35 to 39	4.6%	5.5%
Age 40 to 49	1.9%	6.2%
Age 50+	1.3%	4.1%

Demographics:

Provide an **analysis** of how internal demographic data compare to the campus population. Alternatively, provide demographics relative to the program that are collected. If internal data is not collected, describe plans to implement collection of data.

The internal demographic data reflects an accurate pretrial of the current campus population. The demographic reports are not detailed to pinpoint those who are specifically taking computer science, however, the data collection and population are all relevant to the computer science program. As technology grows and evolves daily, there is a need to harness the efficiency and reach of these technologies to support learning in a controlled and goal driven environment. However, when technology is used in education, it is normally used as a person would use a paper clip to pick their nails, it was not designed for the job, but if you bend it just right, it will work. From a learner's perspective, this leaves much to be desired (Perrotta & Feinberg, 2016). As Dickey (Dickey, 2007) would point out, new technological tools continually challenge every facet of modern life on a personal and professional scale and is challenged to discover models and methods for developing engaging interactive learning environments, preparing students for the future, and maintaining a technologically relevant working environment.

The internal demographics not only reveal a continued rise in the female population on campus, it also exposes the need to accommodate this demographic, along with others, in the male dominated field of computer science and programming. A study by Perry (2018) reveals that in 2018 female's share of computer science degrees stood at 18.7% and rapidly declining. Through previous efforts to increase the diverse population in the computer science department, in 2018 we measured 21.5% female population in the San Bernardino computer science program which, as demonstrated by the demographics chart, is steadily growing. A clear analysis of the data reveals that largest demographic is being served along with every other demographic of the campus population that far surpasses the national average.

References

Dickey, M. D. (2007). Game design and learning: A conjectural analysis of how massively multiple online role-playing games (MMORPGs) foster intrinsic motivation. *Educational Technology, Research and Development,* *55*(3), 253-273. Retrieved from http://library.capella.edu/login?qurl=https%3A%2F%2Fsearch.proquest.com%2Fdocview%2F218037579%3Faccountid%3D27965

Perrotta, K., & Feinberg, J. (2016). Using digital simulations for teaching the constitutional convention in undergraduate history., 158-176.

Pattern of Service:

Describe how the pattern of service and/or instruction provided by your department serve the needs of the community. Include, as appropriate, hours of operation/pattern of scheduling, alternate delivery methods, weekend instruction/service.

The largest demographic at San Bernardino Valley College remains to be female and the computer science departme serve that population while also maintaining equal support and focus on minority populations. In today's world, u some concepts in code and maintaining a literacy in computer science is as important as Math, English, or writing. El schools are actively teaching students to program, and business leaders are consistently requiring some computer coc to verify a candidate's understanding of logic. By 2020, it is estimated that over one million new digitized jobs will be worldwide, 90% of organizations currently lack IT (Information Technology)/Computer Science skills, and 75% of and learners acknowledge a gap between their IT/Programming and job requirements (Nadrljanski, Nadrljanski, & Do 2018). When the gap between the number of computer science graduates needed to fill the current workforce is incl numbers only increase. While computer science is less than 25% of the courses offered, it remains the most neede nationwide. This means that computer science must prepare student for transfer to another college or institution, prep for real-world, and give them skills to maneuver toward success as computer science and programming permeates th every discipline and life experience. To determine what is needed to accommodate the reality, the Computer Scie faculty collaborates with the CIT (Computer Information Technology) faculty to identify appropriate course to keep, or remove. Using faculty experience, current trends, student performance data, market trends, educational paradi access to resources are all considered as part of the decision-making process.

The department recognizes the important of CS as it relates to student success while also acknowledging that many may find the subject incredibly difficult to grasp. To remedy student concerns and foster a welcoming environmen department has created a dedicated Maker Space and Open Lab accessible to members of the SBVC community. The is equipped with up-to-date computers, 3D printers, Ardunio microcontrollers and robotics, industry standard applica staffed by a computer science faculty member. Students have been utilizing the open lab has a resource to incr computer science literacy, make games and applications, or simply learn to build something using the microcontrollers. The Open CS lab also represents the department's outreach to students who are not currently in the are searching for a none grade based way of experiencing computer science as a community or team. This new atmo the computer science department is designed to represent a place that is accepting to all students and breaks the perce computer science is a male activity. The access to resources, technology, and support not only the growing female po but welcomes every demographic as a working member of a team. The support does not stop at the campus as the o coupled with a web portal containing step-by-step tutorials on beginning, fundamental, and advanced topics rang computer science to visual effects. The computer science department maintains a philosophy that outreach should b by a wide variety of resources for learners on and off the campus. This philosophy is personified in each resource pr staff and students on campus or in the cloud.

References

Nadrljanski, D., Nadrljanski, M., & Domitrovic, V. (2018). (2018). The importance of information technology education for the fu

Paper presented at the 323-328. Retrieved from

http://library.capella.edu/login?qurl=https%3A%2F%2Fsearch.proquest.com%2Fdocview%2F2058261275%3Faccountid%

Part II: Questions Related to Strategic Initiative: Promote Student Success

Goal: SBVC will increase course success, program success, access to employment, and transfer rates by enhancing student learning.

SBVC Strategic Initiatives: Strategic Directions + Goals

Meets	**Does Not Meet**	**Meets**	**Exceeds**
Data/Analysis demonstrating achievement of instructional or service success	Program **does not provide an adequate analysis** of the data provided with respect to relevant program data.	Program **provides an analysis** of the data which indicates progress on departmental goals.	In addition to the meets criteria, the program **uses the achievement data** in concrete planning and **demonstrates** that it is prepared for growth.
Service Area Outcomes and/or Student Learning Outcomes and/or Program Level Outcomes	Program **has not demonstrated** that it is continuously assessing Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) based on the plans of the program since their last program efficacy. Evidence of data collection, evaluation, and reflection/feedback, and/or connection to area services is **missing or incomplete**.	Program **has demonstrated** that it has fully evaluated within a four-year cycle and is continuously assessing all Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs).	In addition to the meets criteria, the program **demonstrates that it has fully incorporated Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) into its planning, made appropriate adjustments, and is prepared for growth**.

Student Success:

Provide an analysis of the data and narrative from the program's EMP Summary and discuss what it reveals about your program. (Use data from the Charts that address Success & Retention and Degrees and Certificates Awarded")

Student retention for the computer science program is very steady 81.2% on average for the past five years. The data has varied a bit for the entire five years under consideration; however, the last two years notably have remained almost consistent 82% and 81%. It will be interesting to see the data for 2018-19 to ascertain whether the trend continued or not. Student success rate from the emp data show a slight dip in the 2015-16 school year at 58%; it seems to have recovered in the subsequent years 2016-17 & 2017-18 school years at 60%. Degrees awarded has increased slightly to from 1 in the school year 2013-14 to 5 in both 2016-17 & 2017-18 but not to the level. Certificates awarded did not improve. We have modified and created new degrees and certificates separate from the one in the computer Information Department for the computer science majors in the recent year, to help student distinguished majors in the CIT and CS. Also, the lack of a full-time faculty devoted to the computer science area has been a problem. We are hoping that as we hired a faculty with dedicated to the development of the computer science area, in addition to revamping the department with new cutting-edge curriculum and aggressive marketing, degrees and certificated awarded in the discipline will subsequently improve soon.

Supplemental Data:

Provide any additional information, such as job market indicators, standards in the field or licensure rates that would help the committee to better understand how your program contributes to the success of your students.

Employment continues in the upward trend. Computer Science ranked the 1st, on the list of high paying college majors (https://www.glassdoor.com/blog/50-highest-paying-college-majors/). ICT is a growing area of employment in the Inland Empire (http://www.desertcolleges.org/docs/dsn/ict/ict-in-the-ie.pdf). The new course, certificates, and degrees have added; the existing classes have been modified since the last full efficacy review. The newly added curriculum is a goal toward addressing the changing nature of the Computer science industry.

(INSERT SLO and/or SAO and PLO DATA as appropriate FROM CURRENT REPORT. INSERT COURSE MAP IF AVAILABLE. Refer to prior reports as needed for the analysis.) (Contact Dr. Celia Huston, Co-Chair, Accreditation Committee, at chuston@valley.edu if you need assistance.) **NOTE: Do NOT include the summaries of the outcomes in this document.**

Student Learning Outcomes:

Course SLOs/SAOs. Demonstrate that your program is continuously assessing Course Student Learning Outcomes (SLOs) and/or Service Area Outcomes (SAOs). Include evidence of data collection, evaluation, and reflection/feedback, and describe how the SLOs/SAOs are being used to improve student learning (e.g., faculty discussions, SLO revisions, assessments, etc.). Generate reports from the Cloud as necessary. Include analysis of SLO/SAO Cloud reports and data from summary reports. This section is required for all programs.

The Analysis of department SLO downloaded from the College SLO cloud for the years 2017-2018, revealed that about 78.64.59% percent of the students who completed SLO could analyze a problem and create an algorithmic solution for the desired resolution. The finding agrees with computer science department goals #1, which attempts to Increase the number of students who earn a CS degree and certificate. In another related area of the SLO revealed that 78.97% of the students queried could design, implement and evaluate secure computer-based system specification. In another finding, 78.64% per of the student agree that they engage in research to access new ideas and information. This finding is in line with Computer Science goals #5 and #6. It looks like the students will be more than likely to embrace a new course in the discipline to address developing technologies and changing nature of the computer field, and to treat the department Advisory board recommendations. Reader Note: "Data in this analysis contain duplicate headcount. A student can be counted once for each statement in an SLO, and for each class they took."

Program Level Outcomes:

If your program offers a degree or certificate, describe how the program level outcomes are being used to improve student learning at the program level (e.g., faculty discussions, SLO revisions, assessments, etc.). **Describe** how this set of data is being evaluated or is planned to be evaluated. Generate reports from the SLO Cloud as necessary. Include analysis of SLO Cloud reports and data from 4-year summary reports. If your program does not offer a degree or certificate, this section is optional (but encouraged).

The program level outcome is somewhat difficult to evaluate and analyze currently. The difficulty is that there are only one degree and certificate listed in the 2017-2018 catalog year for the Computer Science program. Majority of the certificates and degrees approved were never included in the analysis and therefore cannot be analyzed. I hope that as new certificates and degrees make their way into the program level pool, we will have data to better respond to this section in the future.

Part III: Questions Related to Strategic Initiative: Improve Communication, Culture & Climate

Goal: SBVC will promote a collegial campus culture with open line of communication between all stakeholder groups on and off-campus.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Communication	The program **does not identify** data that demonstrates communication with college and community.	The program **identifies** data that demonstrates communication with college and community.	In addition to the meets criteria, the program **demonstrates** the ability to communicate more widely and effectively, **describes** plans for extending communication, and provides

			data or research that **demonstrates** the need for additional resources.
Culture & Climate	The program **does not identify** its impact on culture and climate or the plans are not supported by the data and information provided.	The program **identifies and describes** its impact on culture and climate. Program **addresses** how this impacts planning.	In addition to the meets criteria, the program provides data or research that **demonstrates** the need for additional resources.

Communication, Culture & Climate:

Describe how your program communicates its services, goals, and achievements to the campus and to the Community (outreach, events, website, campus emails, flyers, etc.).

The program communicates its serves in a way the incorporates the student's experiences, desires, and overall success in and out of a school setting. We first develop a welcoming environment that can quickly get students excited about their ideas by attending the open lab. Other instructors are encouraged to direct students to the open lab who are struggling with computers, who want more than what the class if offering, or who have an idea they would like to pursue and need some technologically related guidance. The philosophy of the computer science department is to first show how the services can help student, gain their interest, then lead them to more information and growth. This is accomplished by maintaining an open online portal that supplies student with a plethora of free tutorials on a multitude of subjects, including computer science. Comments from students who are not in computer science are helped by these tutorials and is a gateway that leads students to enquire more about the program and how it can help them. This is evident by comments on social media and as listed in the comments of the tutorials themselves. The computer science department has joined with the Multimedia program and the CIT program to create a bridge program called Pathways to Pipelines (P2P). P2P offers assignments in each course that not only satisfies the courses requirements but acts as a gateway to computer science concepts and logic. In many cases this exposes students who would have never tried at coding to the welcoming world of computer science and development.

Students who are in CIT (Computer Information Technology) are introduced to concepts in CIT that leads them to learn more about computer science as well as how constructs of computer science can help them in their efforts to accomplish their goals.
The CS department has:

- Created a dedicated Maker Space
- Upgraded the computer labs
- Provided an open lab that offers students freedom to create or get assistance with computer related concepts
- Created an online portal with access to tutorial developed by our computer science faculty
- 2P2, a faculty developed program that creates a bridge from other disciplines to computer science
- Providing student access to 3D printing, Motion Capture, Virtual Reality, Robotics, Game Creation, and more.

- Maintained and supported the computer science and gaming clubs who advertise to other students what we have done
- Maintained a social media community presence
- Participated in the NASA robotics competition participation

The open lab is equipped with up-to-date computers, 3D printers, Ardunio microcontrollers and robotics, industry standard applications, and staffed by a computer science faculty member. Students have been utilizing the open lab has a resource to increase their computer science literacy, make games and applications, or simply learn to build something using the Arduino microcontrollers. The Open CS lab also represents the department's outreach to students who are not currently in the field and are searching for a none grade based way of experiencing computer science as a community or team. With this structure the students become the advertisers of the CS program and is accompanied by flyers, a web presents, and video presentations/tutorials.

Describe how your program seeks to enhance the culture and climate of the college.

While diversity is important, what unites us is even more important. Technology has the potential to create a pathway to unity. Computer science is not a male or female thing, it is a universal thing that can be used for good or bad intentions. This program seeks to enhance the culture and climate of the college by creating a place where learners are not criticized for not know but encouraged to accept not knowing as a window into the exciting and welcoming world of learning as a community and a team. The computer science department has changed the feel of how computer science is perceived and encourage student to work together to realize their goals. By providing a multitude of resources that are not designed for beginners and providing resources that both the advanced learner and beginner can use, we propagate the idea that there is something for everyone and anyone can learn and succeed in the computer science field.
By creating an open community of helpers and resources backed by knowledgeable educators, the CS department aims to change the culture and climate of the college to that of team, community, future thinking, and computer science literate. While not every student will strive to be a dedicated computer science professional, every learner and non-learner will need the education it supplies.

Describe one or more external/internal partnerships.

Two internal partnerships are with the media program and the CIT program. These partnerships exist under the Pathways to Pipelines(P2P) title. P2P is a bridge program that offers assignments in each course that not only satisfies the courses requirements but also acts as a gateway to computer science concepts and logic. P2P exposes learners to concepts in their respective course(s) to a subset of computer science and acts as a gateway to the subject from their current perspective.

External partnerships exist with the 3D game engine company Unity and NASA. The partnership with Unity supplies our students with the industry standard game engine and course work developed by professionals in the industry. Through this partnership, student can learn and create professional content that could lead to a marketable product or a job in the gaming industry.
The NASA partnership is part of a NASA grant that gives the students the opportunity to join a team, learn about coding, robotics, drones, and engineering with an opportunity to be invited to a tour of NASA's base. Many more exiting partnerships are lined up that will give our learners the education, opportunity, and the edge.

Other external partners the department is affiliated with are partnership with the Here-to-Career, and workforce workability programs. We have a connection with San Bernardino Superintended of School ROP program and the Colton, Redland, and Yucaipa (CRY) ROP. We have Cyber Girls seminar planned for area High school girls on April 21, in San Bernardino. This partnership is our joint effort to encourage girls to take occupations in the new lucrative field of Cybersecurity.

What plans does your program have to further implement any of these initiatives?

We are currently expanding the partnerships to include Google, Amazon, Adobe, Paramount Pictures, and others that recognize the opportunity for them to be a part of the growth and development of the future and current workforce they will need. We also are developing an imagination workshop that will teach learners how to create technologies and applications as prototypes from their imaginations using the skills, they learned in courses they have taken at SBVC. Many other initiatives are in the works, from the learning R tutorials we are developing to the Gaming, programming, and Coplay workshops we have outlined in discussions, the CS department is growing with the future and beyond.

IV: Questions Related to Strategic Initiative: Maintain Leadership & Promote Professional Development

Goal: SBVC will maintain capable leadership and provide professional development to a staff that will need skills to function effectively in an evolving educational environment.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Professional Development	The program **does not identify** currency in professional development activities.	Program **identifies current avenues** for professional development.	In addition to the meets criteria, the program shows that professional development has **impacted/expanded** the program and **demonstrates**

			that the program is positioning itself for growth.

Professional Development:

1. Discuss the ways that members of your department maintain currency in their field (conferences, workshops, technical trainings, etc.).

Each department faculty is obligated to attain 24 hours of professional development each year. Department faculty, besides, engages in professional development activities specific to horn their area of specialization in the computer field. The .5 faculty working on the CS-specific courses has just completed his master's degree in computer science and currently enrolled in his Doctorial in computer science.

2. Identify the professional organizations that your department and/or department members belong to and how those organizations meet professional development parameters.

We are a member of the Western Region CyberWatch West initiative, Ethical hacking, and Cisco Academy. We have applied to become a Center for Academic Excellency (CAE2) an NSA certification that will certify that our graduates meet the two years education required for federal employment in the Cybersecurity occupations jobs.

3. Discuss specific ways faculty and staff engage in professional growth (i.e. attend or present at conferences, establish training opportunities with other community colleges). Include future opportunities that are planned by faculty and staff. Discuss how professional development has impacted/expanded the program.

Department faculty attends various conferences each year. The aim of these seminars is updating their skills and remaining relevant with changing nature of the computer field. Department faculty has organized and presented in the past in meetings and workshops held for students and staff from our local feeder high school. Professional development funds are available through the professional development committee and department funds we receive from Here-to-Career and workforce workability grants.

V: Questions Related to Strategic Initiative: Effective Evaluation & Accountability

Goal: SBVC will improve institutional effectiveness through a process of evaluation and continuous improvement.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Mission/ Statement of Purpose	The program **does not have** a mission/ statement of purpose, or it **does not clearly link** with the institutional mission.	The program **has** a mission/statement of purpose, and it **links**	

		clearly with the institutional mission.	
Productivity	The data **does not show** an acceptable level of productivity for the program, or the issue of productivity is not adequately addressed.	The data **shows** the program is productive at an acceptable level.	The program functions at a highly productive level and has planned for growth as appropriate.
Relevance, Currency, Articulation	The program **does not provide** evidence that it is relevant, current, and that courses articulate with CSU/UC, if appropriate. Out of date course(s) that were not launched into Curricunet by Oct. 1, 2017 may result in an overall recommendation no higher than Conditional.	The program **provides** evidence that the curriculum review process is up to date. Courses are relevant and current to the mission of the program. Appropriate courses **have been articulated** or transfer with UC/CSU, or **plans are in place** to articulate appropriate courses.	In addition to the meets criteria, the program **discusses plans** to enhance current course offerings that link to student/community needs and positions the program for improved student outcomes.
Challenges	The program **does not incorporate** weaknesses and challenges into planning.	The program **incorporates** weaknesses and challenges into planning.	The program **incorporates** weaknesses and challenges into planning that demonstrate the need for expansion.

Mission and Purpose:

San Bernardino Valley College maintains a culture of continuous improvement and a commitment to provide high-quality education, innovative instruction, and services to a diverse community of learners. Its mission is to prepare students for transfer to four-year universities, to enter the workforce by earning applied degrees and certificates, to foster economic growth and global competitiveness through workforce development, and to improve the quality of life in the Inland Empire and beyond.

What is the mission statement or purpose of the program?

Computer Science program prepares students planning to transfer to a four-year university, experience in computer programming for students enrolled in science or engineering disciplines and academic computer science preparation for students interested in pursuing employment at Valley College. The program offers an AS degree and a certification in computer science.

The Computer Science program leads to either an Associate of Science degree or a certificate. The degree program prepares students to transfer to a four-year institution with a major in computer science or a related discipline. Students planning to move to a four-year institution

and major in computer science should consult with a counselor regarding the transfer process and lower division requirements.

How does this mission or purpose relate to the college mission?

The Computer science mission describes high-quality education from a Computer Science perspective and is therefore wholly aligned with the SBVC mission. Computer Science Department courses and programs prepare students both for work and transfer to four-year institutions.

Productivity:

Provide additional **analysis and explanation** of the productivity data and narrative in the EMP summary if needed. Use data from charts (FTEs; Enrollment; FTFE and WSCH per FTFE). Explain any unique aspects of the program that impact productivity data, for example, Federal Guidelines, Perkins, number of workstations, licenses, etc.

No additional analysis of EMP data is needed, other than as provided in the EMP summary earlier in this document.

Relevance and Currency, Articulation of Curriculum:

The Content Review Summary from Curricunet indicates the program's current curriculum status. If curriculum is out of date, explain the circumstances and plans to remedy the discrepancy. (NOTE: If the report is inaccurate, contact Mary Copeland, Co-Chair, Curriculum Committee, (mcopel@valleycollege.edu) or Kay Dee Yarbrough, Administrative Curriculum Coordinator, (kyarbrough@sbccd.cc.ca.us) for updated information.

Mathematics, Business & Computer Technology				
	Computer Science			
	Course	**Status**	**Last Content Review**	**Next Review Date**
	CS 074 iOS App Development	Active	02/27/2018	02/27/2024
	CS 075 Introduction to Web Development	Active	02/27/2018	02/27/2024
	CS 076 Android App Development	Active	02/27/2018	02/27/2024
	CS 098 Computer Science Work Experience	Active	09/24/2018	09/24/2024
	CS 110 Fundamentals of Computer Science	Active	12/03/2012	12/03/2018

	CS 120 Introduction to Visual Basic.NET	Active	12/08/2015	12/08/2021
	CS 130 Discrete Structures	Active	09/08/2014	09/08/2020
	CS 170 Assembly Language	Active	12/03/2012	12/03/2018
	CS 190 Programming in C++	Active	10/06/2014	10/06/2020
	CS 215 Programming with Java	Active	12/07/2015	12/07/2021
	CS 220 Advanced Visual Basic.NET Programming	Active	12/08/2015	12/08/2021
	CS 222 Special Problem Comp Sci I	Active	09/08/2014	09/08/2020
	CS 265 Data Structures and Algorithms with C++	Active	10/06/2014	10/06/2020
	CS 098 Computer Science Work Experience	Historical		
	CS 110 Fundamentals of Computer Science	Historical		
	CS 120 Introduction to Visual Basic.NET	Historical		
	CS 130 Applied Computer Logic	Historical		
	CS 130 Discrete Structures	Historical		
	CS 170 Assembly Language	Historical		
	CS 190 Programming in C++	Historical		
	CS 190 Programming in C++	Historical		
	CS 215 Programming with Java	Historical		
	CS 220 Advanced Visual Basic.NET Programming	Historical		
	CS 220 Visual Basic Programming II	Historical		
	CS 265 Data Structures	Historical		
	CS 265 Data Structures and Algorithms with C++	Historical		

Articulation and Transfer

List Courses above 100 where articulation or transfer is **not** occurring	With CSU	With UC
NONE		

Describe your plans to make these course(s) qualify for articulation or transfer. Describe any exceptions to courses above 100.

All courses listed in the chart above are articulated and transferable.

Currency

Review all mentions of your area in the catalog. Is the information given accurate? If not, briefly identify the areas that will be revised.

As at the time of this report, some areas in the current catalog as it relates to computer science degrees and certificates listed are not complete and or accurate. Below are Computer science degrees and certificates that need an update in the catalog. We are continuously monitoring and working with appropriate college personnel to accomplish updating in the catalog description to reflect newly approved Degree and certificates.

Program Search Results

Actions	Program	Status
	Computer Science **New Degree** Transfer Degree, AS-T Roger Powell	Approved
	Computer Science **Degree Modification** A.S. Degree Major Malik Stalbert	Active
	Computer Science **Certificate Modification** Certificate Malik Stalbert	Active
	Computer Science Associate of Science Degree **New Degree** A.S. Degree Major Peter-John Stanskas	Active
	Computer Science Associate of Science Degree **Degree Modification** A.S. Degree Major Roger Powell	Pending
	Computer Science Certificate **Certificate Modification**	Pending

	Certificate Roger Powell	

If any courses are no longer offered, list them here. (Include Course # and Title of the Course). If the information is inaccurate and/or there are listed courses not offered, how does the program plan to remedy the discrepancy?

Follow the link below and review the last college catalog data.
http://www.valleycollege.edu/academic-career-programs/college-catalog.aspx

If your information needs updating, contact Kay Dee Yarbrough, Administrative Curriculum Coordinator, (kyarbrough@sbccd.cc.ca.us).

We will be contacting Kay Dee Yarbrough, Administrative Curriculum Coordinator to ensure that all computer science courses, certificates, and degrees, were updated in the college catalog. Current college catalog listed only degree and a certificate for the program, while we have a lot more recently approved by the curriculum committee and region as shown the curricunet extract above.

Challenges:

Referencing the narratives in the EMP summary, provide any additional data or new information regarding planning for the program. In what way does your planning address trends and weaknesses in the program?

Some of the challenges identified in the EMP document are:

1. Frequent course cancellation due to low enrollment each semester

2. The unnecessary high number of units required for CS AS-T degree

3. Lack of workforce to conduct high school outreach

5. Rapid and constant nature of the field

6. lengthy Regional, State and ACCJC degree and certificate approval process

7. No loopback communication between Regional consortium approval process and the college curriculum committee

While some of the challenges identified in the last EMP has been addressed, other problems remain. The department will benefit from outreach to feeder high schools and ROP programs. But lack of a full-time faculty devoted to the program makes it difficult to realize. We are yet

to achieve the impact of new state law AB 705 and state mandates like the Guided Pathways on the Computer Science program.

VI: Questions Related to Strategic Initiative: Provide Exceptional Facilities

Goal: SBVC will support the construction and maintenance of safe, efficient, and functional facilities and infrastructure to meet the needs of students, employees, and the community.

SBVC Strategic Initiatives: Strategic Directions + Goals

	Does Not Meet	Meets	Exceeds
Facilities	The program **does not provide an evaluation** that addresses the sustainability of the physical environment for its programs.	Program **provides an evaluation** of the physical environment for its programs and **presents evidence** to support the evaluation.	In addition to the meets criteria, the program has **developed a plan** for obtaining or utilizing additional facilities for program growth.

Facilities:

Provide an evaluation of the facilities in your area and their impact on the educational environment for your students (classroom facilities, technology, space needs, maintenance issues, etc.). Address sustainability of the facility (including technology needs).

We have adequate educational materials and a physical environment conducive for learning. We need a full-time computer science faculty devoted to the Computer Science department.

VII: Previous Does Not Meets Categories

Listed below, from your most recent Program Efficacy document, are those areas which previously received "Does Not Meet."

Address, in **DETAIL AND WITH SPECIFIC EXAMPLES**, how each deficiency was resolved. If these areas have been discussed elsewhere in this current document, provide the section where these discussions can be located.

Department addressed all of the previous does not meets in the revised CTE report—spring 2018.